

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

California Water Supply Outlook Report

May 1, 2018



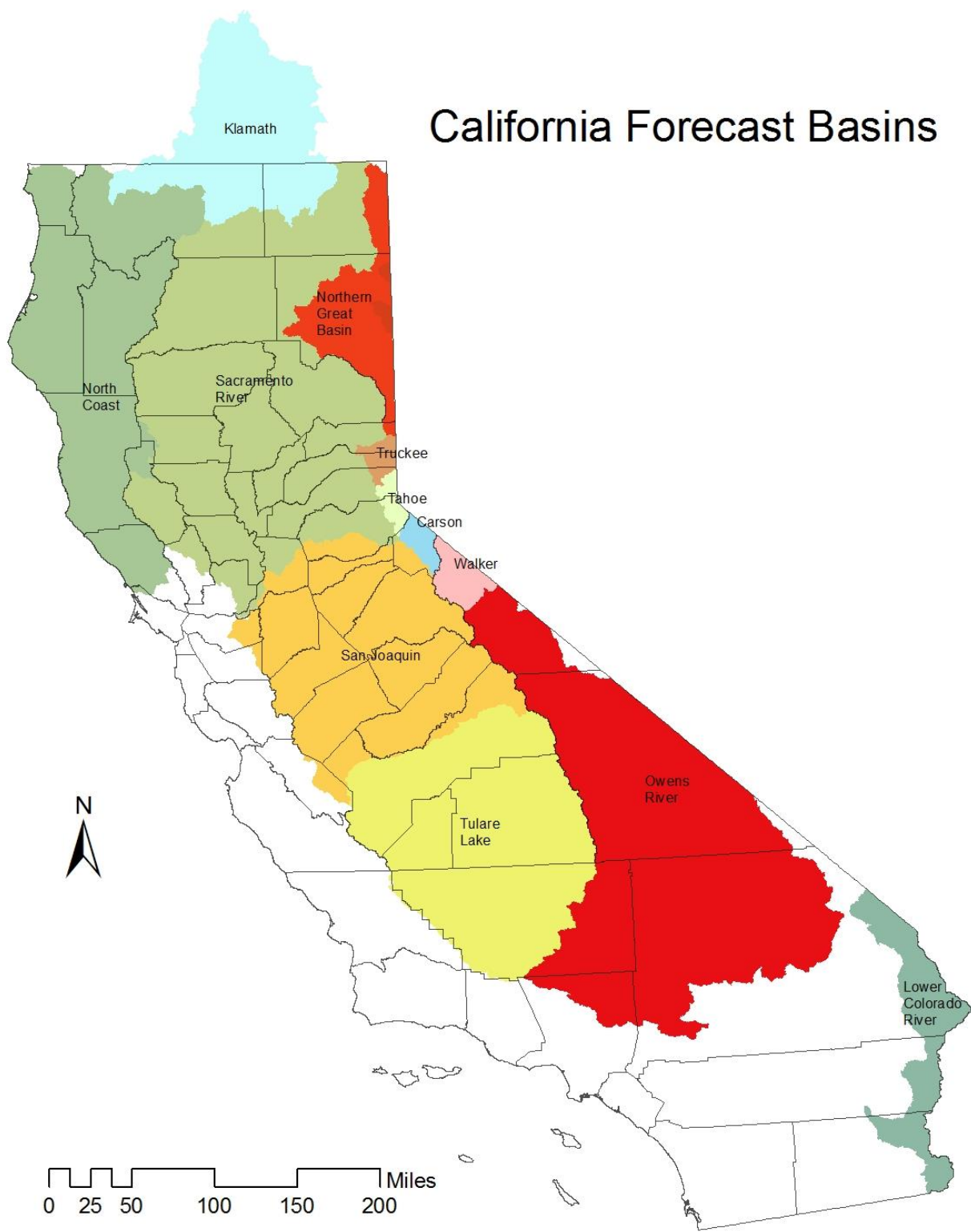
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Cover photo: Lyell Fork of the Tuolumne River in Yosemite National Park. The photo was taken by Park Rangers on April 16, 2018 (<https://www.nps.gov/yose/blogs/update-for-april-18-2018-last-update-for-the-season.htm>). Mammoth Peak in the background. The DWR meteorological station at nearby Tuolumne Meadows recorded a snow water equivalent of 2.5 inches on April 25, 2018, which is 11% of the April 1 average.

California Forecast Basins



STATE OF CALIFORNIA GENERAL OUTLOOK

May 1, 2018

SUMMARY

Despite average- to above average rainfall in April, California wrapped up its traditional wet season on the dry side, particularly in the south. Precipitation since the beginning of the water year (October 1 – May 1) was around 80 percent of average for the date in the north and central Sierras, and 65 percent in the southern Sierras. Likewise, mid-month snowstorms were not enough to improve the season's persistently meager snowpack, which declined by April 30 to a statewide average of 32 percent for the date. Overall storage capacity of California's major reservoirs remain over 100%.

SNOWPACK

April started out with a statewide average snowpack of 54 percent of normal for the date, which rapidly thinned to below 50 percent of normal and 'never looked back,' despite a series of cold storms that dumped snow in the northern and central Sierras mid-month. By April 30, snow water equivalents for the north-, central-, and southern regions were 29-, 37-, and 24 percent of normal for the date, respectively.

More information is available online at <http://cdec.water.ca.gov/snow/current/snow/index2.html>.

PRECIPITATION

An "atmospheric river" storm in early April triggered local flooding in Yosemite Valley and the Lake Tahoe area, and helped boost rainfall totals in north- and central California; the Northern Sierra (8 Station)- and San Joaquin (5-Station) precipitation indices were 126- and 105 percent of average for the month of April, respectively. In the south, the Tulare 6-Station precipitation index recorded nearly average rainfall for the month, although April's totals weren't enough to pull the region out of a moderate- to severe drought (<http://droughtmonitor.unl.edu/>).

More information is available online at http://cdec.water.ca.gov/snow_rain.html

RESERVOIRS

As of May 11, storage in most of California's major reservoirs were near or above average for the date, including 106% and 135% at Shasta and New Melones, respectively. Storage behind Oroville Dam remains below average as Phase 2 of the spillway repair construction project commenced May 8.

More information is available online at <https://cdec.water.ca.gov/reservoir.html>.

STREAMFLOW

NWS' forecast streamflows (April through July) range between 46- (Sacramento River at Shasta) and 122 percent of average (Cosumnes River at Michigan Bar). The streamflow forecasts for the major basins in California are summarized below.

Sacramento River Basin

This month's NWS forecasts of streamflow volumes for April through July range between 46- and 101% of average.

SACRAMENTO RIVER BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast								
Forecast Point	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Sacramento R at Shasta (DWR)	APR-JUL			175	59			295
Sacramento R at Shasta (NWS)	APR-JUL	134	136	143	46	153	198	312
McCloud R ab Shasta (DWR)	APR-JUL			320	84			379
McCloud R ab Shasta (NWS)	APR-JUL	317	318	321	83	330	357	385
Pit R at Shasta Lk (DWR)	APR-JUL			890	87			1020
Pit R at Shasta Lk (NWS)	APR-JUL	779	789	807	80	848	933	1013
Inflow to Shasta Lk (DWR)	APR-JUL	1220		1440	82		1610	1756
	OCT-SEP	3575		3870	66		4090	5831
Inflow to Shasta Lk (NWS)	APR-JUL	1295	1316	1346	75	1438	1658	1803
Sacramento R nr Red Bluff (DWR)	APR-JUL	1620		1940	80		2260	2421
	OCT-SEP	4735		5155	60		5555	8544
Sacramento R nr Red Bluff (NWS)	APR-JUL	1881	1908	1939	78	2056	2359	2479
Feather R at Lk Almanor (DWR)	APR-JUL			250	75			333
NF Feather R at Pulga (DWR)	APR-JUL			800	78			1028
NF Feather R nr Prattville (NWS)	APR-JUL	182	187	193	58	206	234	333
MF Feather R nr Clio (DWR)	APR-JUL			65	76			86
SF Feather R at Ponderosa Dam (DWR)	APR-JUL			85	77			110
Inflow to Oroville Res (DWR)	APR-JUL	1080		1310	77		1480	1704
	OCT-SEP	3040		3325	75		3520	4407

Sacramento River Basin (cont'd)

SACRAMENTO RIVER BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Inflow to Oroville Res (NWS) APR-JUL	1220	1238	1265	74	1327	1578	1701
N Yuba R bl Goodyears Bar (DWR) APR-JUL			240	86			279
N Yuba R bl Goodyears Bar (NWS) APR-JUL	220	224	227	83	239	266	273
Inflow Jackson Mdws & Bowman Res (DWR) APR-JUL			95	85			112
S Yuba R nr Langs Crossing (DWR) APR-JUL			190	82			233
Yuba R at Smartville (DWR) APR-JUL	670		810	84		950	968
OCT-SEP	1770		1915	84		2060	2268
Yuba R at Smartville (NWS) APR-JUL	787	808	829	85	890	1009	981
NF American R at N FK Dam (DWR) APR-JUL			240	92			262
MF American R nr Auburn (DWR) APR-JUL			480	92			522
MF American R nr Auburn (NWS) APR-JUL	414	424	434	89	457	481	490
Inflow to Union Valley Res (NWS) APR-JUL	94	95	99	101	103	113	98
Silver Ck bl Camino Div. Dam (DWR) APR-JUL			160	93			173
Silver Ck bl Camino Div. Dam (NWS) APR-JUL	120	123	128	81	138	149	158
Inflow to Folsom Res (DWR) APR-JUL	910		1100	92		1300	1199
OCT-SEP	2175		2367	90		2570	2626
Inflow to Folsom Res (NWS) APR-JUL	1054	1075	1105	90	1171	1248	1232

The average is based on the 1981-2010 reference period.

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

San Joaquin River Basin

This month's NWS forecasts of streamflow volumes for April through July range between 80- and 122 percent of average.

SAN JOAQUIN RIVER BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast								
Forecast Point	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Cosumnes R at Michigan Bar (DWR)								
	APR-JUL	100		130	104		165	125
	OCT-SEP	290		324	86		360	379
Cosumnes R at Michigan Bar (NWS)								
	APR-JUL	153	154	156	122	161	170	128
NF Mokelumne R nr West Point (DWR)								
	APR-JUL			370	85			437
Inflow to Pardee Res (DWR)								
	APR-JUL	350		390	85		450	457
	OCT-SEP	600		644	86		705	748
Inflow to Pardee Res (NWS)								
	APR-JUL	371	376	394	84	415	438	467
MF Stanislaus R bl Beardsley (DWR)								
	APR-JUL			280	84			334
Inflow to New Melones Res (DWR)								
	APR-JUL	510		580	85		680	682
Inflow to New Melones Resr (DWR)								
	OCT-SEP	892		965	84		1070	1149
Inflow to New Melones Res (NWS)								
	APR-JUL	562	568	578	84	600	632	690
Cherry & Eleanor Cks, Hetch Hetchy (DWR)								
	APR-JUL			280	89			315
Tuolumne R nr Hetch Hetchy (DWR)								
	APR-JUL			530	88			604
Tuolumne R nr Hetch Hetchy (NWS)								
	APR-JUL	483	490	502	84	522	548	596
Inflow to New Don Pedro Res (DWR)								
	APR-JUL	930		1050	88		1220	1193
	OCT-SEP	1560		1685	88		1860	1909
Inflow to New Don Pedro Res (NWS)								
	APR-JUL	1003	1012	1038	85	1072	1156	1228

San Joaquin River Basin (cont'd)

SAN JOAQUIN RIVER BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Merced R, Pohono Bridge Yosemite (DWR) APR-JUL			300	81			372
Merced R, Pohono Bridge Yosemite (NWS) APR-JUL	330	336	345	90	354	372	385
Inflow to Lake McClure (NWS) APR-JUL	496	504	514	80	530	553	642
San Joaquin R at Mammoth Pool (DWR) APR-JUL			830	81			1026
Big Ck bl Huntington Lk (DWR) APR-JUL			75	82			91
SF San Joaquin R nr Florence Lk (DWR) APR-JUL			160	80			201
Inflow to Millerton Lk (DWR) APR-JUL	860		1000	81		1140	1228
OCT-SEP	1245		1395	78		1550	1793
Inflow to Millerton Lk (NWS) APR-JUL	1064	1080	1118	89	1147	1217	1258

The average is based on the 1981-2010 reference period.

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Tulare Lake Basin

This month's NWS forecasts of streamflow volumes for April through July range between 50- and 84 percent of average.

TULARE LAKE BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
NF Kings R nr Cliff Camp (DWR)	APR-JUL			190	80			239
Inflow to Pine Flat Res (DWR)	APR-JUL	820		960	79		1100	1210
	OCT-SEP	1145		1295	76		1440	1702
Inflow to Pine Flat Res (NWS)	APR-JUL	996	1009	1037	84	1074	1101	1231
Kaweah R at Terminus Res (DWR)	APR-JUL	140		165	58		190	285
	OCT-SEP	220		249	55		280	451
Kaweah R at Terminus Res (NWS)	APR-JUL	185	189	192	67	198	203	288
Tule R at Success Res (DWR)	APR-JUL	22		28	44		35	63
	OCT-SEP	55		64	44		75	147
Tule R at Success Res (NWS)	APR-JUL	31	31	32	51	33	35	63
Kern R nr Kernville (DWR)	APR-JUL			210	55			384
Inflow to Isabella Res (DWR)	APR-JUL	210		250	55		300	458
	OCT-SEP	395		440	60		500	728
Inflow to Isabella Res (NWS)	APR-JUL	216	221	226	50	236	243	454

The average is based on the 1981-2010 reference period.

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

North Coast Area Basin

This month's forecasts of streamflow volumes for April through July remain well below average.

NORTH COASTAL AREA Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

Forecast Point	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Trinity R at Lewiston (DWR)								
	APR-JUL	250		300	47		350	639
	OCT-SEP	520		571	42		625	1348
Inflow to Clair Engle Lk (NWS)								
	APR-JUL	279	285	305	46	340	422	666
Scott R nr Fort Jones (NWS)								
	APR-JUL	97	99	103	60	111	125	173

The average is based on the 1981-2010 reference period.

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Klamath Basin

From the Water Supply Outlook Report for Oregon (May 1, 2018)

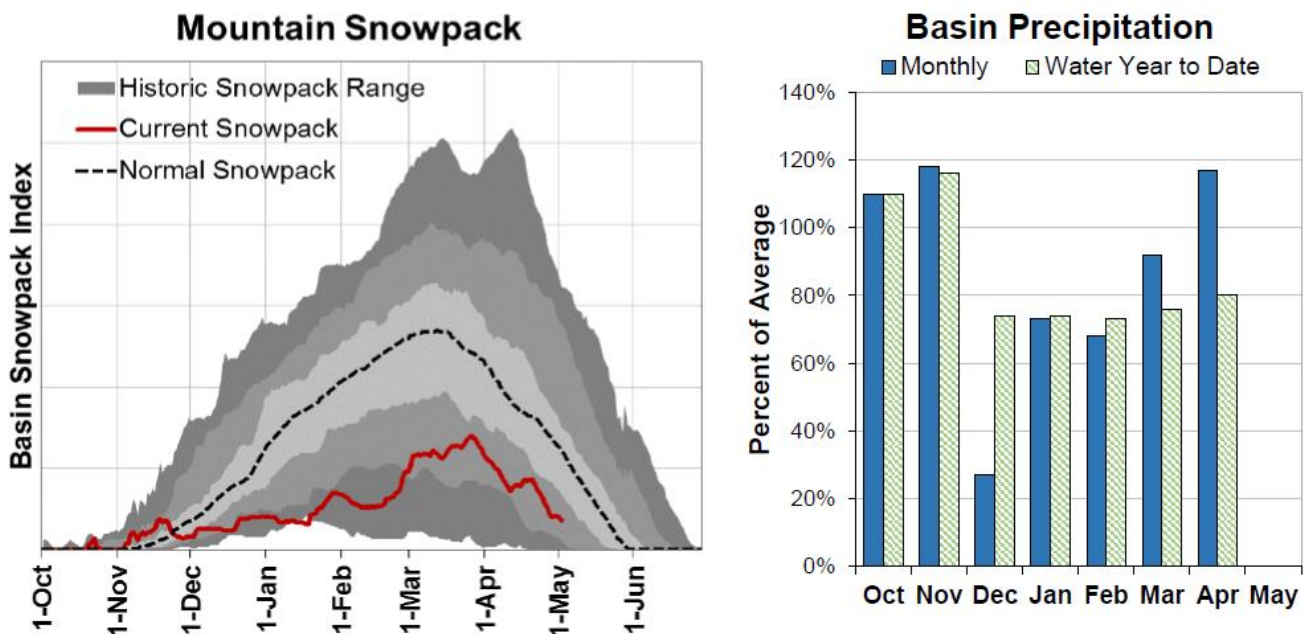
https://www.wcc.nrcs.usda.gov/ftpref/states/or/watersupply/2018/WSOR_2018_May.pdf:

Snowpack: As of May 1, about half of snow measurement sites in the basin are snow-free, which is typical for this time of year. However, the remaining snowpack at the higher elevation sites (above ~6000 ft) is currently 49% of normal. In general, SNOTEL sites in the basin peaked around 30% to 60% of normal peak snowpack levels this winter. While the timing of the snowpack peak was near normal for most sites, several peaked up to 3 weeks later than normal.

Precipitation: April precipitation was 117% of average. Precipitation since the beginning of the water year (October 1 - May 1) has been 80% of average.

Reservoirs: As of May 1, storage at major reservoirs in the basin ranges from 90% of average at Clear Lake to 124% of average at Gerber Reservoir.

Streamflow Forecast: The May through September streamflow forecasts in the basin range from 26% to 68% of average.



Klamath Basin (cont'd)

KLAMATH BASIN
Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Gerber Res Inflow (2)								
	MAY-JUL	0.00	0.26	1.37	25	3.4	7.8	5.4
	MAY-SEP	0.00	0.33	1.53	26	3.6	8.3	5.8
Sprague R nr Chiloquin								
	MAY-JUL	35	49	60	51	72	92	118
	MAY-SEP	51	67	79	56	92	113	141
Williamson R bl Sprague R								
	MAY-JUL	66	93	112	60	131	158	187
	MAY-SEP	116	146	166	68	186	215	245
Upper Klamath Lake Inflow (1,2)								
	MAY-JUL	46	105	132	55	159	220	240
	MAY-SEP	97	164	195	61	225	295	320

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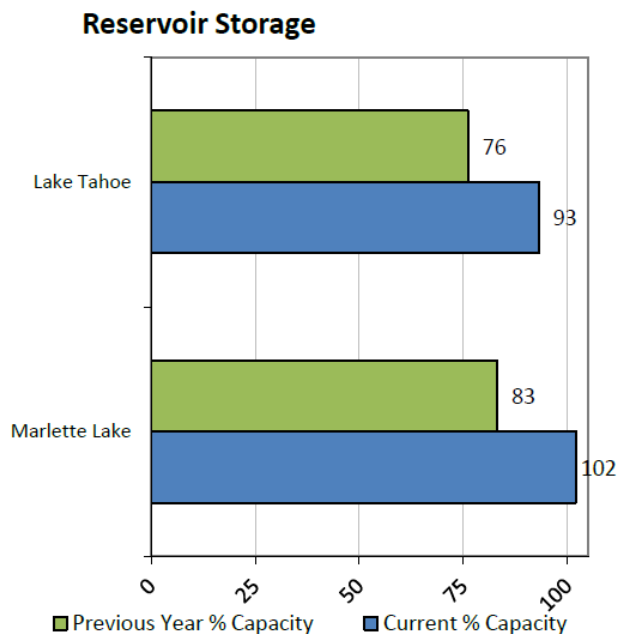
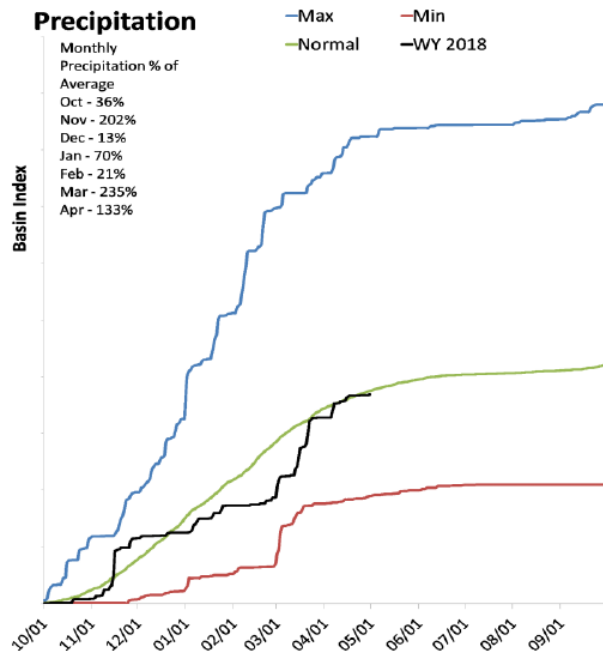
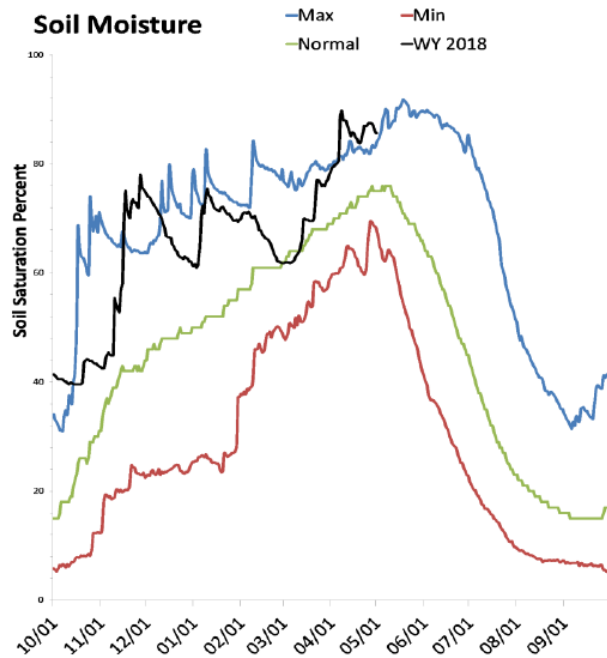
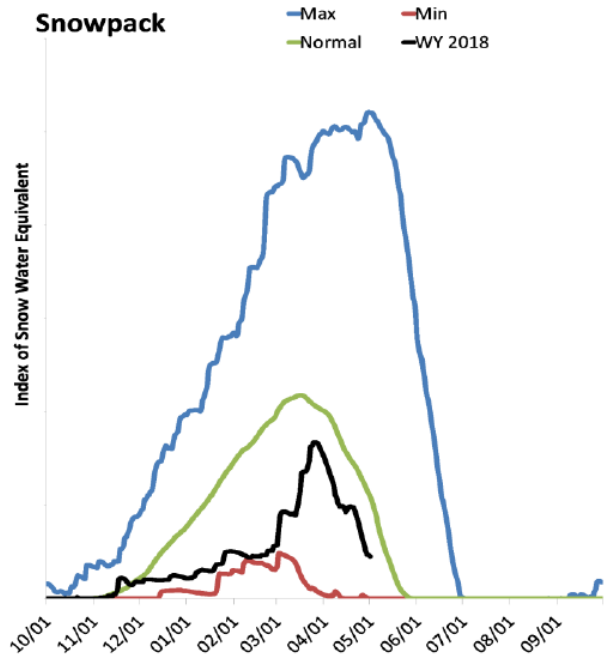
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Lake Tahoe Basin

From the Water Supply Outlook Report for Nevada (May 1, 2018)

(<https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/>):

Snowpack in the Lake Tahoe Basin is much below normal at 41% of median, compared to 347% last year. Precipitation in April was much above average, which brings the seasonal accumulation (Oct-Apr) to 98% of average. Soil moisture is at 85% saturation, compared to 83% last year. Lake Tahoe's water elevation is 6228.68 ft, which is 5.68 ft above the lake's natural rim and equals a storage of 692.9 thousand acre-feet. Last year its elevation was 6227.65 ft which equaled a storage of 568.9 thousand acre-feet. Lake Tahoe is expected to fill to its legal limit of 6,229.1 ft this summer based on lake rise forecasts.



Lake Tahoe Basin (cont'd)

LAKE TAHOE BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

Forecast Point Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Marlette Lk Inflow (Acre-Ft)							
APR-JUL	273	569	770	93	971	1267	830
MAY-JUL	-50	230	420	78	610	890	540
Lake Tahoe Rise - Gates Closed (Ft)							
APR-HIGH	1.10	1.31	1.40	107	1.50	1.71	1.31
MAY-HIGH	0.38	0.58	0.67	62	0.76	0.96	1.08
Lake Tahoe Net Inflow							
APR-JUL	87	113	136	94	147	173	144.6
MAY-JUL	6.7	32	49	47	66	91	105

The average is based on the 1981-2010 reference period.

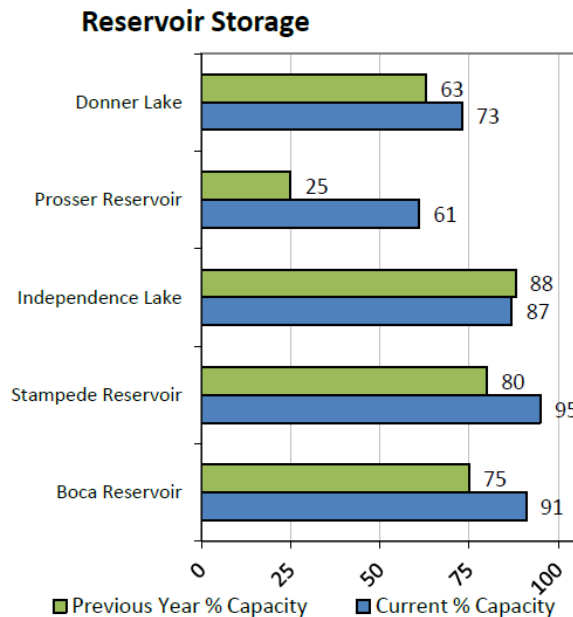
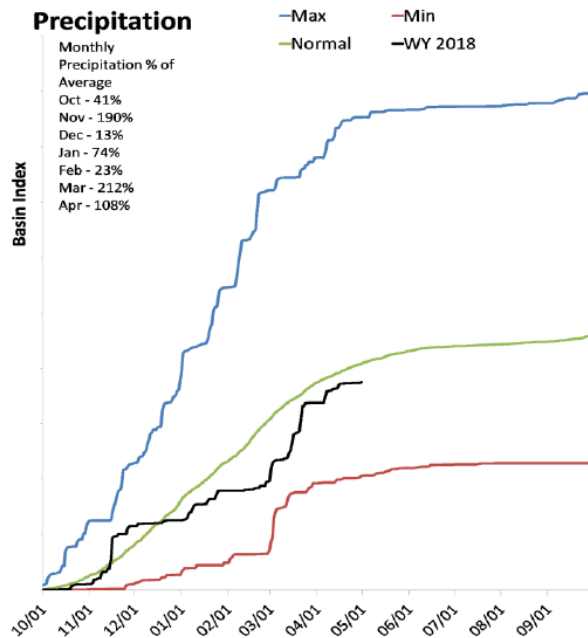
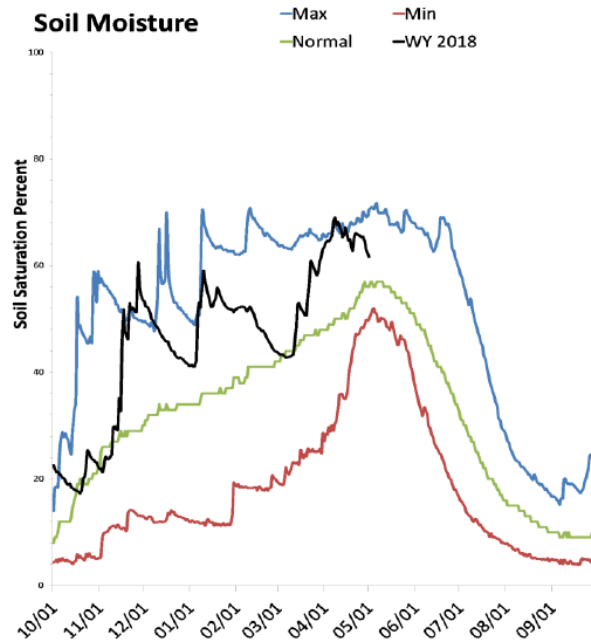
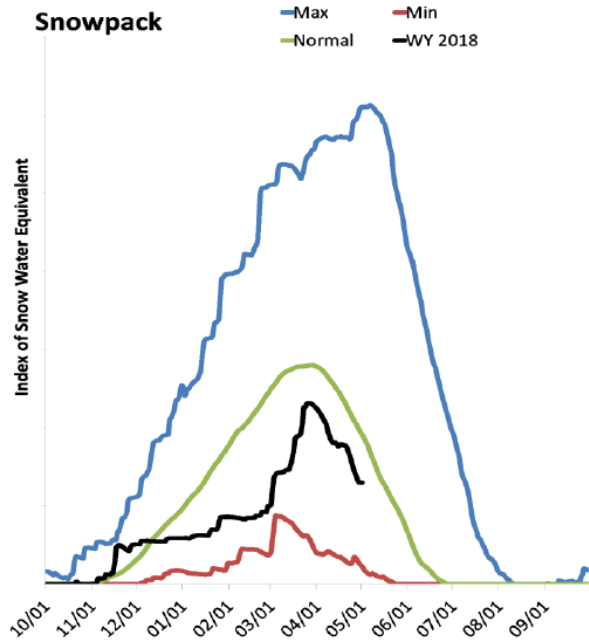
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Truckee River Basin

Including Information from the Water Supply Outlook Report for Nevada (May 1, 2018)

(<https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/>):

Snowpack in the Truckee River Basin is much below normal at 64% of median, compared to 251% last year. Precipitation in April was near average, which brings the seasonal accumulation (Oct-Apr) to 92% of average. Soil moisture is at 61% saturation, compared to 69% last year. Combined reservoir storage is 90% of capacity, compared to 75% last year. The large decrease from the Apr-Jul to the May-Jul forecast streamflow volumes reflect the rapid snowmelt in April.



Truckee River Basin (cont'd)

TRUCKEE RIVER BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Donner Lake Inflow								
	APR-JUL	9.8	12.1	13.7	77	15.3	17.6	17.84
	MAY-JUL	1.92	3.9	5.3	43	6.7	8.7	12.24
Martis Ck Res Inflow								
	APR-JUL	6.0	7.7	8.9	95	10.1	11.8	9.39
	MAY-JUL	0.12	2.0	3.3	58	4.6	6.4	5.66
Prosser Ck Res Inflow								
	APR-JUL	27	31	34	79	37	41	42.84
	MAY-JUL	9	13	15.6	51	18.3	22	30.84
Independence Res Inflow								
	APR-JUL	6.5	7.9	8.8	73	9.7	11.1	12.1
	MAY-JUL	3.5	4.7	5.5	56	6.3	7.5	9.88
Sagehen Ck nr Truckee								
	APR-JUL	4.2	4.7	5.0	89	5.3	5.9	5.6
	MAY-JUL	2.2	2.5	2.7	64	3.0	3.4	4.2
Stampede Res Local Inflow								
	APR-JUL	55	65	71	93	77	87	76.5
	MAY-JUL	16.4	27	35	64	43	54	54.47
L Truckee R ab Boca Resv								
	APR-JUL	60	70	77	88	84	94	88
	MAY-JUL	13.9	28	38	61	48	62	62
Boca Res Local Inflow								
	APR-JUL	0.54	2.9	4.5	82	6.1	8.5	5.5
	MAY-JUL	0.14	0.54	1.3	64	2.1	3.2	2.02
Truckee R ab Farad Sidewater								
	APR-JUL	82	95	104	96	113	126	108.9
	MAY-JUL	37	48	56	68	64	76	82.14
Truckee R at Farad								
	APR-JUL	205	230	250	98	265	290	255
	MAY-JUL	91	114	130	71	146	169	183

The average is based on the 1981-2010 reference period.

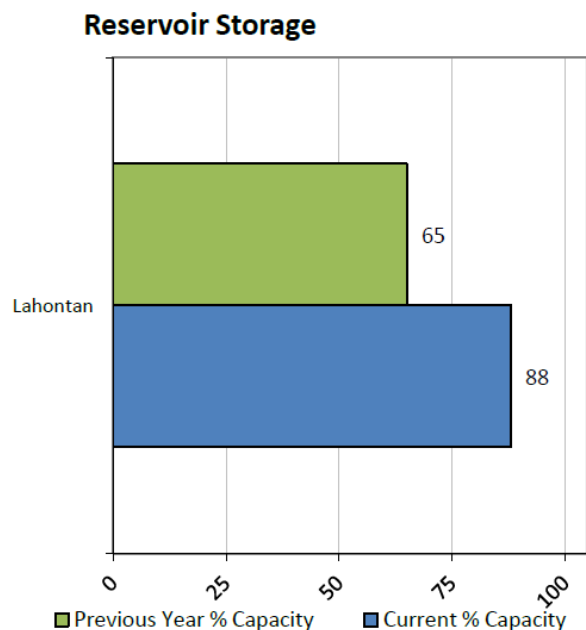
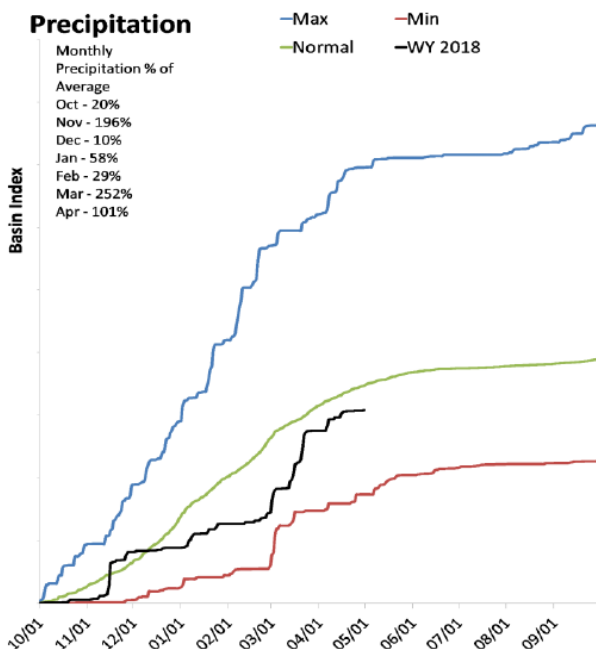
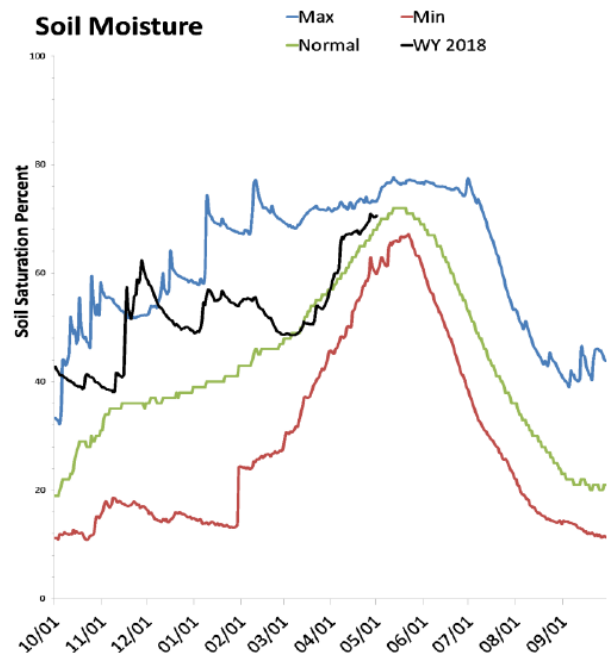
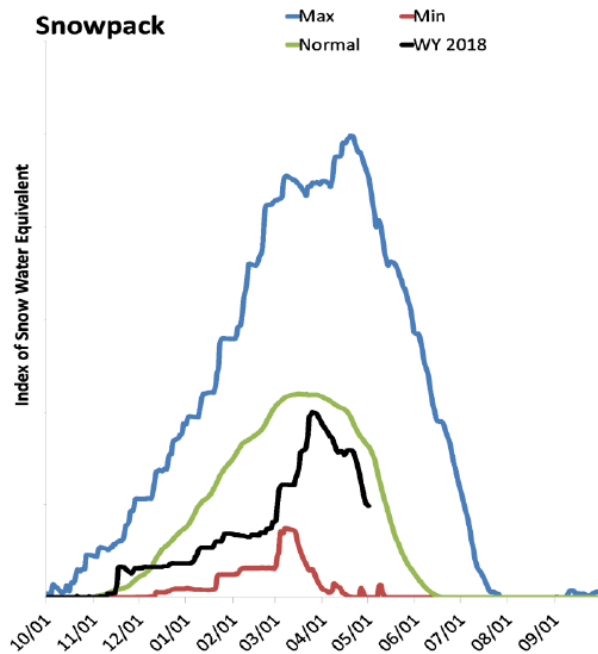
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Carson River Basin

Including Information from the Water Supply Outlook Report for Nevada (May 1, 2018)

(<https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/>):

Snowpack in the Carson River Basin is much below normal at 63% of median, compared to 289% last year. Precipitation in April was near average, which brings the seasonal accumulation (Oct-Apr) to 88% of average. Soil moisture is at 70% saturation, compared to 73% last year. Storage in Lahontan Reservoir is 88% of capacity, compared to 65% last year. Forecast streamflow volumes for the East- and West Forks of the Carson River are 74% and 83% of average, respectively.



Carson River Basin (cont'd)

CARSON RIVER BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

Forecast Point	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
EF Carson R nr Gardnerville								
	APR-JUL	125	161	185	100	209	245	186
	MAY-JUL	74	97	112	74	127	149	151
WF Carson R at Woodfords								
	APR-JUL	42	50	56	104	62	70	54
	MAY-JUL	21	29	35	83	41	49	42

The average is based on the 1981-2010 reference period.

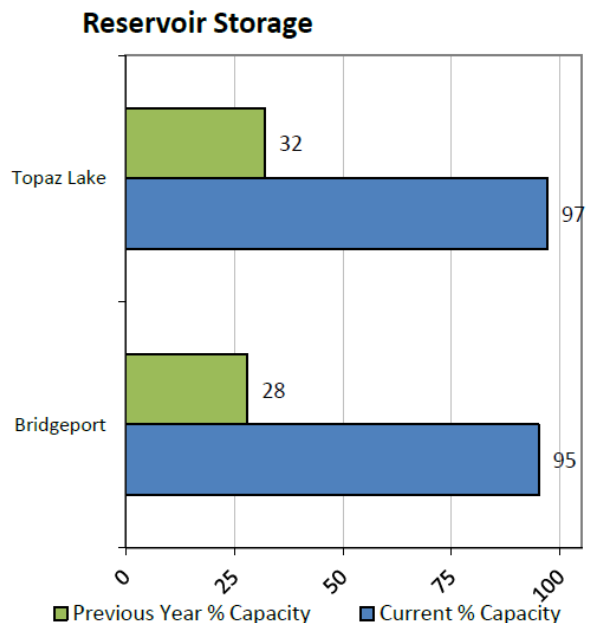
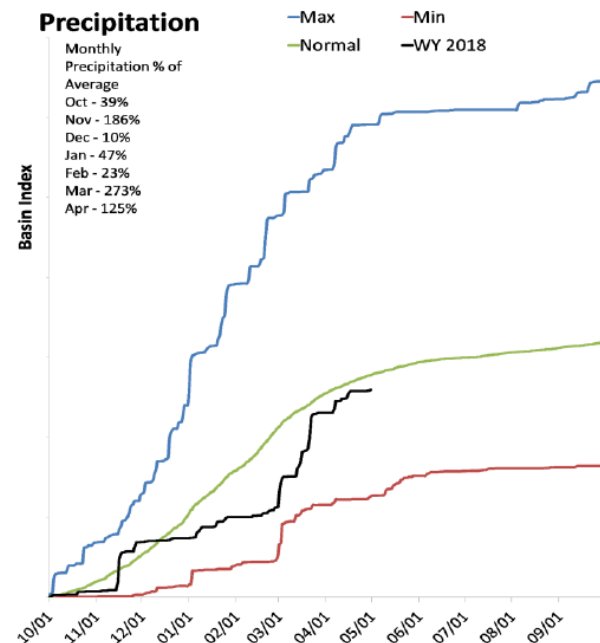
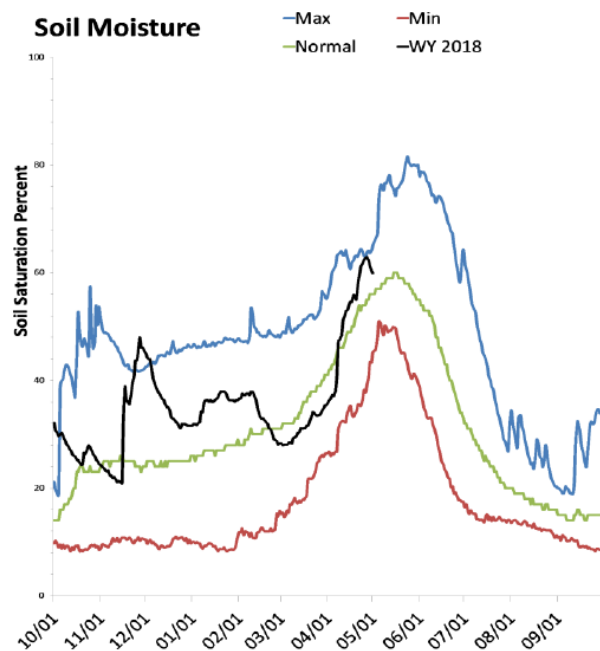
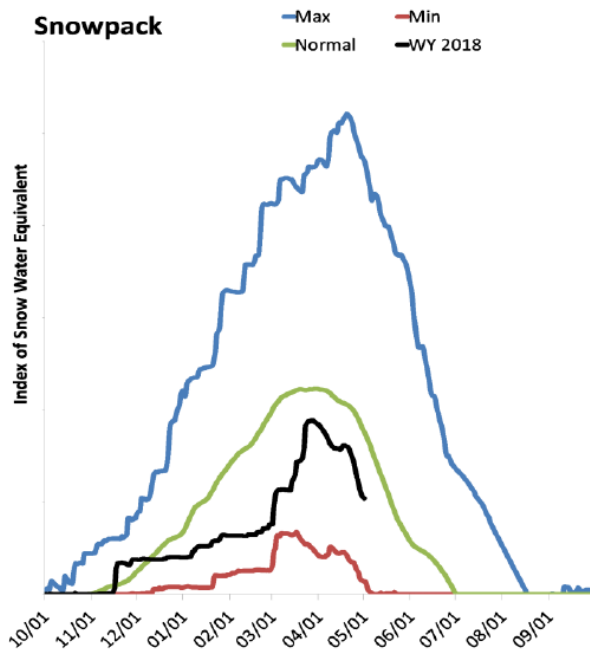
- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Walker River Basin

From the Water Supply Outlook Report for Nevada (May 1, 2018)

(<https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/>):

Snowpack in the Walker River Basin is much below normal at 63% of median, compared to 279% last year. Precipitation in April was above average, which brings the seasonal accumulation (Oct-Apr) to 93% of average. Soil moisture is at 60% saturation, compared to 64% last year. Combined reservoir storage is 96% of capacity, compared to 30% last year. Forecast streamflow volumes between May-August range from 70% to 82% of average.



Walker River Basin (cont'd)

WALKER RIVER BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

Forecast Point	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
E Walker R nr Bridgeport								
	APR-AUG	7.6	38	58	85	78	108	68
	MAY-AUG	2.4	28	45	82	62	88	55
W Walker R bl L Walker R nr Coleville								
	APR-JUL	114	132	144	89	156	174	162
	MAY-AUG	66	86	100	70	114	134	142
W Walker R nr Coleville								
	APR-JUL	120	136	147	90	158	174	163
	MAY-AUG	72	88	100	70	112	128	143

The average is based on the 1981-2010 reference period.

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions.

Owens River Basin

OWENS RIVER BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

Forecast Point	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Owens R (DWR)	APR-SEP			170	74			231

The average is based on the 1981-2010 reference period.

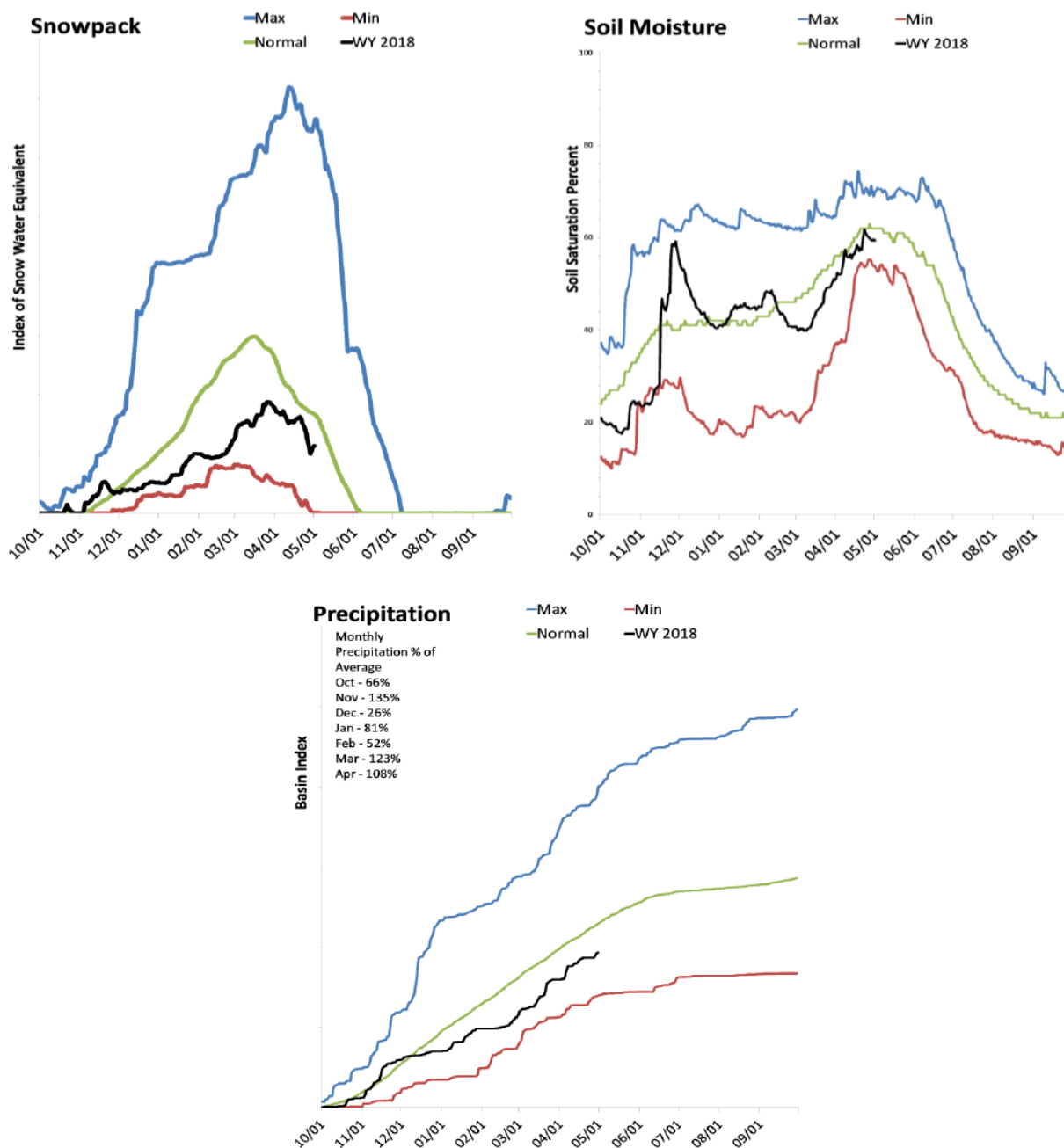
- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Northern Great Basin

From the Water Supply Outlook Report for Nevada (May 1, 2018)

(<https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/>):

Snowpack in the Northern Great Basin is much below normal at 58% of median, compared to 184% last year. Precipitation in April was near average, which brings the seasonal accumulation (Oct-Apr) to 85% of average. Soil moisture is at 58% saturation, compared to 68% last year. Forecast streamflow volumes between April and July range from 75% to 84% of average.



Northern Great Basin (cont'd)

NORTHERN GREAT BASIN Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

Forecast Point	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Davis Ck (Acre-Ft)								
	APR-JUL	3600	4600	5400	75	6400	8300	7233
	APR-SEP	4200	5200	6200	78	7200	9100	7991
Eagle Ck nr Eagleville								
	APR-JUL	1.8	2.9	3.6	84	4.3	5.4	4.3
Bidwell CK nr Ft. Bidwell								
	APR-JUL	6.2	8.1	9.4	78	10.7	12.6	12.0

The average is based on the 1981-2010 reference period.

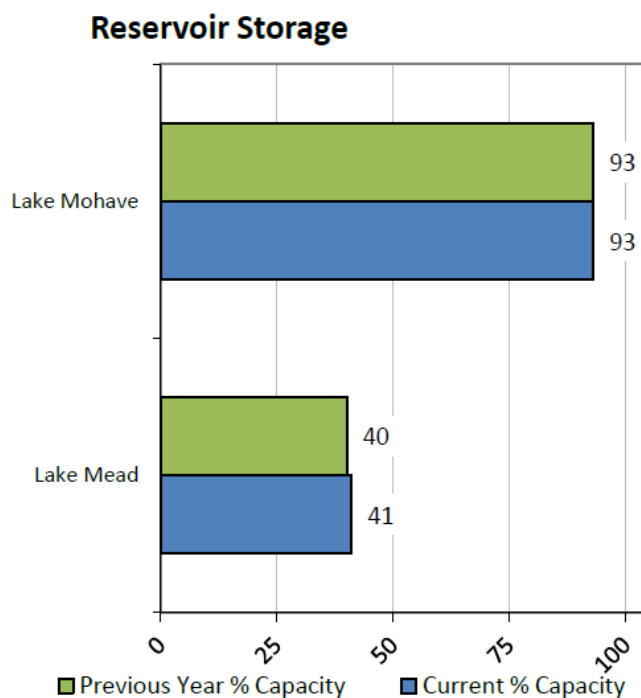
- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Lower Colorado River Basin

From the Water Supply Outlook Report for Nevada (May 1, 2018)

(<https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/>):

Storage in Lake Mead is 41% of capacity, slightly greater than last year at this time. Lake Mohave storage is 93% of capacity, the same as last year. The forecast streamflow volume between May and July for Lake Powell Inflow is 34% of average.



COLORADO RIVER BASIN
Streamflow Forecasts - May 1, 2018

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

Forecast Point Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Lake Powell Inflow (2)							
APR-JUL	1670	2130	2480	35	2860	3480	7160
MAY-JUL	1290	1750	2100	34	2480	3100	6100

The average is based on the 1981-2010 reference period.

- 1) 90% and 10% exceedance probabilities are actually 95% and 5%
- 2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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California Water Supply Outlook Report

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